

### ABSTRACT

Space time transmit diversity (9, 14, 17, 19) is applied at the block level to an original block of bits (12) in order to reduce the effects of fading in wireless communication systems that use nonlinear modulation schemes (13, 33). At the receiving end, fading parameters ( $\alpha_1, \alpha_2$ ) are estimated ( $\alpha_{E1}, \alpha_{E2}$ ) and the properties of complex conjugates are utilized (28, 29, 201, 202) to produce a result ( $r_1, r_2$ ) that is representative of the original block of bits.